



Virtual University

About Us

CS301
Solved Final Terms Papers

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Year
2017

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Paper Pattern

MCQS 40 each 1 mark
Short 4 each 2 marks
Short 4 each 3 marks
long 4 each 5 marks

Question No : 1 of 52

Marks: 1 (Budgeted Time 1 Min)

Data allocated in an array should be ,

Answer (Please select your correct option)

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Contiguous correct

Discontinuous

Apart

Scattered

Made by: Waqar Siddhu

Question No : 2 of 52

Marks: 1 (Budgeted Time 1 Min)

The easiest case of deleting a node from BST is the case in which the node to be deleted _____

Answer (Please select your correct option)

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Is a leaf node correct

Has left subtree only

Has right subtree only

Has both left and right subtree

Made by: Waqar Siddhu

Question No : 3 of 52

Marks: 1 (Budgeted Time 1 Min)

Consider a min heap, represented by the following array:
3,4,6,7,5
After calling the function deleteMin(). Which of the following is the updated min heap?

Answer (Please select your correct option)

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4,6,7,5

6,7,5,4

4,5,6,7

correct

4,6,5,7

Made by: Waqar Siddhu

Question No : 4 of 52

Marks: 1 (Budgeted Time 1 Min)

Consider the following postfix expression S and the initial values of the variables.

$S = A B - C + D E F - + ^$
Assume that A=3, B=2, C=1, D=1, E=2, F=3

What would be the final output of the stack?

Answer (Please select your correct option)

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1

correct

2

0

-1

Made by: Waqar Siddhu

Question No : 5 of 52

Marks: 1 (Budgeted Time 1 Min)

Consider the following infix expression.

$5 + 6 / 2$

If one converts the above expression into postfix, what would be the resultant expression?

Answer (Please select your correct option)

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$56 / + 2$

$5 6 2 / +$

correct

$5 6 / 2 +$

$/ 6 2 + 5$

Made by: Waqar Siddhu

Question No : 6 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is a data structure that can grow easily dynamically at run time without having to copy existing elements.

Answer (Please select your correct option)

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Array **correct**

List

Two dimensional array

Linked list

Made by: Waqar Siddhu

Question No : 7 of 52

Marks: 1 (Budgeted Time 1 Min)

In _____ the 'next' returns false when it reaches to the last node due to the fact that the next field of the last node is set to NULL.

Answer (Please select your correct option)

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Circular linked list **correct**

Triple linked list

Singly linked list

Triple linked list and Circular linked list

Made by: Waqar Siddhu

Question No : 8 of 52

Marks: 1 (Budgeted Time 1 Min)

In Threaded Binary Tree, every node that does not have a right-child has a thread to its

Answer (Please select your correct option)

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in-order predecessor

pre-order successor

in-order successor **correct**

pre-order predecessor

Made by: Waqar Siddhu

Question No : 9 of 52

Marks: 1 (Budgeted Time 1 Min)

In Threaded Binary Tree, every node that does not have a left-child has a thread to its

Answer (Please select your correct option)

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- in-order successor
- pre-order successor
- in-order predecessor
- pre-order predecessor

CORRECT

Made by: Waqar Siddhu

Question No : 10 of 52

Marks: 1 (Budgeted Time 1 Min)

Suppose currentNode refers to a node in a linked list (using the Node class with member variables called data and nextNode). Which statement changes currentNode so that it refers to the next node?

Answer (Please select your correct option)

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- currentNode ++;
- currentNode = nextNode;
- currentNode += nextNode;
- currentNode = currentNode->nextNode;

correct

Made by: Waqar Siddhu

Question No : 11 of 52

Marks: 1 (Budgeted Time 1 Min)

Queue follows

Answer (Please select your correct option)

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- Last in First out
- First in Last out
- First in First out
- Random order

correct

Made by: Waqar Siddhu

Question No : 12 of 52

Marks: 1 (Budgeted Time 1 Min)

We access elements in AVL Tree through

Answer (Please select your correct option)

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Both linear and non linear ways

Random order

Linear way only

Non Linear way only **correct**

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Question No : 13 of 52

Marks: 1 (Budgeted Time 1 Min)

In complete Binary tree, the bottom level is filled from _____.

Answer (Please select your correct option)

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Left to right **correct**

Right to left

Not filled at all

Up to down

Made by: Waqar Siddhu

Question No : 14 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following statement is NOT true for Huffman code?

Answer (Please select your correct option)

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It is a method for the compression of standard text documents.

It uses Binary tree to develop codes of varying lengths for the letters used in the original message.

It is no more used in any compressed file format. **correct**

It is also part of the JPEG image compression scheme.

Made by: Waqar Siddhu

Question No : 15 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one of the following is NOT the property of equivalence relation:

Answer (Please select your correct option)

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Reflexive

Symmetric

Transitive

Associative

correct

Made by: Waqar Siddhu

Question No : 16 of 52

Marks: 1 (Budgeted Time 1 Min)

Here is an array of ten integers:

5 3 8 9 1 7 0 2 6 4

Array after the FIRST iteration of the main loop in selection sort algorithm will be (sorting from smallest to largest) :

Answer (Please select your correct option)

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0 3 8 9 1 7 5 2 6 4 correct

2 6 4 0 3 8 9 1 7 5

2 6 4 9 1 7 0 3 8 5

0 3 8 2 6 4 9 1 7 5

Made by: Waqar Siddhu

Question No : 17 of 52

Marks: 1 (Budgeted Time 1 Min)

When unions are done by weight (size), the depth of any element is never greater than

Answer (Please select your correct option)

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$\log_2 n$ correct

$n \log_2 n$

$n \log_2 n + 1$

$\log_2 n - 1$

Made by: Waqar Siddhu

Question No : 18 of 52

Marks: 1 (Budgeted Time 1 Min)

What is the best definition of *collision* in a hash table?

Answer (Please select your correct option)

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- Two entries are identical except for their keys.
- Two entries with different data have different keys.
- Two entries with different keys have the same hash value.
- Two entries with the same key have different hash values.

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Question No : 19 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following can be the inclusion criteria for pixels in image segmentation ?

Answer (Please select your correct option)

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- Threshold of intensity
- Pixel intensity, Texture and Threshold of intensity correct
- Pixel intensity
- Texture

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Question No : 20 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following statement is NOT true for reference variable ?

Answer (Please select your correct option)

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- Once a reference is created, it cannot be later made to reference another object.
- References cannot be NULL.
- References can be uninitialized.
- It is not possible to refer directly to a reference object after it is defined.

Made by: Waqar Siddhu

Question No : 21 of 52

Marks: 1 (Budgeted Time 1 Min)

Running time of $find(i)$ is proportional to the _____ of the tree containing node i .

Answer (Please select your correct option)

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Weight

Height

correct

Root

Number of links

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Question No : 22 of 52

Marks: 1 (Budgeted Time 1 Min)

A random maze can use which of the following algorithms to generate a new maze every time?

Answer (Please select your correct option)

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Union

Find

Search-sort

Union-find

correct

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Question No : 23 of 52

Marks: 1 (Budgeted Time 1 Min)

A Row in a table is known as:

Answer (Please select your correct option)

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Record

correct

Dictionary

Field

Cell

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Question No : 24 of 52

Marks: 1 (Budgeted Time 1 Min)

In a skip list _____ limit of the array has no condition.

Answer (Please select your correct option)

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Lower

Middle

Upper

Bottom

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Question No : 25 of 52

Marks: 1 (Budgeted Time 1 Min)

When two or more than two keys produce a same index in hashing function, this situation is know as:

Answer (Please select your correct option)

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Same key and same value

Collision **correct**

Same key generation

Same value generation

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Question No : 26 of 52

Marks: 1 (Budgeted Time 1 Min)

When does the best case of an insertion sort algorithm occur?

Answer (Please select your correct option)

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When data is already sorted

When more than 50% data already sorted

When no element is on its proper position

When about 90% of data is already sorted

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Question No : 27 of 52

Marks: 1 (Budgeted Time 1 Min)

Best case running time of insertion sort algorithm is:

Answer (Please select your correct option)

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(n)

(n²)

correct

(logn)

(nlogn)

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Question No : 28 of 52

Marks: 1 (Budgeted Time 1 Min)

If a list contains 32 elements, how many times the list must split during merge sort?

Answer (Please select your correct option)

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Log (32) times

32 times

16 times

Log (32/2) times

correct

not confirm

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Question No : 29 of 52

Marks: 1 (Budgeted Time 1 Min)

If an AVL tree becomes unbalance due to inserting/deleting a node then we use _____ to rebalance it.

Answer (Please select your correct option)

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Notation

Rotation

correct

Recursion

extraction

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Question No : 30 of 52

Marks: 1 (Budgeted Time 1 Min)

Return value of `getMin()` method is always of MinHeap.

Answer (Please select your correct option)

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Root

correct

Right

Left

Leaf

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Question No : 31 of 52

Marks: 1 (Budgeted Time 1 Min)

The worst case of building a heap of N keys is

Answer (Please select your correct option)

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N

N²

NlogN

correct

2^N

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Question No : 32 of 52

Marks: 1 (Budgeted Time 1 Min)

Which statement is about heap area when an executable is run?

Answer (Please select your correct option)

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The operating system makes a process inside memory

Contains the binary version of the actual code

A section for static data including global variables

Utilized at the time of memory allocation in dynamic manner

correct

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Question No : 33 of 52

Marks: 1 (Budgeted Time 1 Min)

Using Huffman Encoding for data to be sent on network enables us to send it with.....

Answer (Please select your correct option)

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Large data size and More transmission time

Small data size and More transmission time

Small data size and Less transmission time

correct

Large data size and Less transmission time

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Question No : 34 of 52

Marks: 1 (Budgeted Time 1 Min)

Compiler is a _____.

Answer (Please select your correct option)

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Network

Data Structure

Language Translator

correct

Database

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Question No : 35 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following is NOT a factor in *Union by Size*?

Answer (Please select your correct option)

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Maintains sizes (number of nodes) of all trees

Makes smaller tree, the subtree of the larger one

Makes the larger tree, the subtree of the smaller one

correct

Maintains sizes (number of nodes) while performing union operation

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Question No : 36 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following sorting algorithms is of divide- and-conquer type?

Answer (Please select your correct option)

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Insertion sort

Bubble sort

Selection sort

Quick Sort

correct

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Question No : 37 of 52

Marks: 1 (Budgeted Time 1 Min)

A binary tree with 45 internal nodes has _____ links to external nodes.

Answer (Please select your correct option)

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44

45

46

90

Made by: Waqar Siddhu

Question No : 38 of 52

Marks: 1 (Budgeted Time 1 Min)

If there are 23 external nodes in a Binary tree, then number of internal nodes will be:

Answer (Please select your correct option)

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23

24

21

22

Made by: Waqar Siddhu

Question No : 39 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following statements is NOT true about threaded binary tree?

Answer (Please select your correct option)

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Right thread of the right-most node points to the *dummy* node.

Left thread of the left-most node points to the *dummy* node.

The left pointer of the *dummy* node points to the root node of the tree.

Left thread of the right-most node points to the *dummy* node. **correct**

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Question No : 40 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following is NOT an example of equivalence relation?

Answer (Please select your correct option)

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Electrical connectivity

Set of people

\leq relation **correct**

Set of pixels

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Question No : 41 of 52

Marks: 2 (Budgeted Time 4 Min)

If we allow assignment to constants what will happen?

Answer (Please click here to Add Answer)

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Rich text editor toolbar with icons for Bold, Italic, Underline, Text Color, Background Color, Bulleted List, Numbered List, Indent, Outdent, Undo, Redo, and a 100% zoom level.

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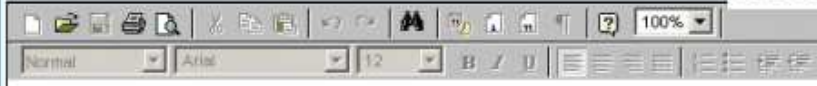
Question No : 42 of 52

Marks: 2 (Budgeted Time 4 Min)

How Table ADT can be implemented using Linked List ?

Answer ([Please click here to Add Answer](#))

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Question No : 43 of 52

Marks: 2 (Budgeted Time 4 Min)

How we can search an element in Skip List?

Answer ([Please click here to Add Answer](#))

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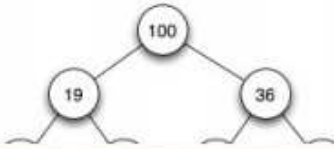


Made by: Waqar Siddhu

Question No : 44 of 52

Marks: 2 (Budgeted Time 4 Min)

Convert this tree representation of a heap into the corresponding array representation



Answer ([Please click here to Add Answer](#))

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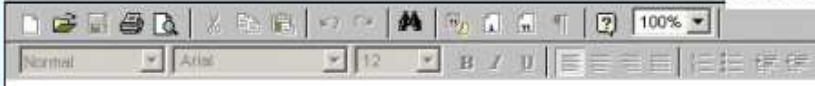
Question No : 45 of 52

Marks: 3 (Budgeted Time 6 Min)

When Hashing is NOT suitable?

Answer ([Please click here to Add Answer](#))

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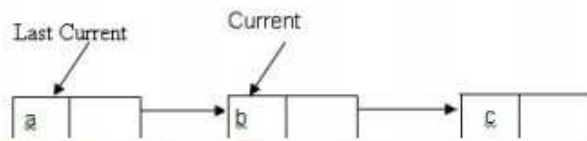


Made by: Waqar Siddhu

Question No : 46 of 52

Marks: 3 (Budgeted Time 6 Min)

Consider the following singly Linked List



Answer ([Please click here to Add Answer](#))

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Made by: Waqar Siddhu

Question No : 47 of 52

Marks: 3 (Budgeted Time 6 Min)

The following array represents a heap structure:

1	2	3	4	5	6	7	8	9	10	11	12
97	76	61	42	54	59	31	23	17	44	49	

Insert a new value **86** into the heap. Show the resultant heap, after insertion, in the form of array

Answer ([Please click here to Add Answer](#))

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Made by: Waqar Siddhu

Question No : 48 of 52

Marks: 3 (Budgeted Time 6 Min)

How many parameters are required for performing the following operations on Table? Also tell names of those parameters.

- 0. insert
- 1. find
- 3. remove

Answer ([Please click here to Add Answer](#))

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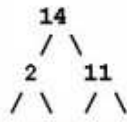


Made by: Waqar Siddhu

Question No : 49 of 52

Marks: 5 (Budgeted Time 10 Min)

Here is a small binary tree:



Answer ([Please click here to Add Answer](#))

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Made by: Waqar Siddhu

Question No : 50 of 52

Marks: 5 (Budgeted Time 10 Min)

Here is an array with exactly 15 elements:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15.

Suppose that we are doing a binary search for an element. Indicate any elements that will be found by examining two or fewer numbers from the array.

Answer ([Please click here to Add Answer](#))

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Question No : 51 of 52

Marks: 5 (Budgeted Time 10 Min)

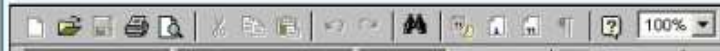
Consider the min-heap represented in the following array:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
10	20	30	50	40	70	60	80	90	110	100	130	120	140	150

Show the updated min-heap in the array after deleting 10.

Answer ([Please click here to Add Answer](#))

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Made by: Waqar Siddhu

Question No : 52 of 52

Marks: 5 (Budgeted Time 10 Min)

Given input {23, 46, 12, 59, 78, 87, 2, 3} and a hash function $h(x) = x \bmod 11$, show the resulting "Chaining hash table".

Answer ([Please click here to Add Answer](#))

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